

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/22891

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :C07D 321/00; A61K 31/335  
US CL :549/267; 514/450

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 549/267; 514/450

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	US 5,994,564 A (VAN SICKLE) 30 November 1999, column 2.	1-26

Further documents are listed in the continuation of Box C.

See patent family annex.

- \* Special categories of cited documents:
- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*B\* earlier document published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed
- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- \*&\* document member of the same patent family

Date of the actual completion of the international search  
04 OCTOBER 2000

Date of mailing of the international search report

20 NOV 2000

Name and mailing address of the ISA/US  
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/19794

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

composition according to claims 24-26.

6. Claims: 1-3 (all partially); 7 (partially); 9, 22 (all partially); 24-26 (all partially)

Compounds according to formula I of claim 1 for which X2 is N, X1/X3/X4 are CR'' and A represents (iv) or for which X3 is N, X1/X2/X4 are CR'' and A represents (iv) as well as their fungicidal use and composition according to claims 24-26.

7. Claims: 1-9 (all partially); 16-18; 24-26 (all partially)

Compounds according to formula I of claim 1 for which X1-X4 in the heterocycle form pyrimidine, for which X1-X4 in the heterocycle form pyrazine, or for which X1-X4 in the heterocycle form pyridazine as well as their fungicidal use and composition according to claim 24-26.

8. Claims: 1-4 (all partially); 9,21,24-26 (all partially)

Compounds according to formula I of claim 1 for which X1-X4 form pyrrole, pyrazole or imidazole and A represents (i) as well as their fungicidal use and composition according to claim 24-26.

9. Claims: 1-3 (all partially); 5,6,8 (all partially); 9,21, 24-26 (all partially)

Compounds according to formula I of claim 1 for which X1-X4 form pyrrole, pyrazole or imidazole and A represents (ii), (iii), or (v) as well as their fungicidal use and composition according to claim 24-26.

10. Claims: 1-3 (all partially); 7 (partially); 9,21, 24-26 (all partially)

Compounds according to formula I of claim 1 for which X1-X4 form pyrrole, pyrazole or imidazole and A represents (iv) as well as their fungicidal use and composition according to claim 24-26.

11. Claims: 1-9 (all partially); 19, 20 (all partially); 23-26 (all partially)

**FURTHER INFORMATION CONTINUED FROM PCT/SA/ 210**

Compounds according to formula I of claim 1 for which X1-X4 form heterocyclic aromatic rings not being part of the above mentioned inventions 1-10.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

REMARK:

The following objections are made in the context of the non-unity limitation appearing from sheet "Form PCT/ISA/206" that is: they are restricted to invention 1 and as such to those parts of claims 1-4, 9-11, 24-26 relevant to the first invention.

Claims searched: 1-4 (all incompletely)

9-11 (all incompletely)  
24-26 (all completely)

The initial phase of the search for the first invention according to the sub-division made of the present application revealed a very large number of documents relevant to the issue of novelty. So many documents were retrieved that it is impossible to determine which parts of the claims may be said to define subject-matter for which protection might legitimately be sought (Article 6 PCT). For these reasons it appears impossible to execute a meaningful search and/or to issue a complete search report over the whole breadth of the claims.

Consequently, the search has been restricted to:

-The use of heterocyclic aromatic amides of claim 1 as indicated in claims 24-26

-Compounds per se according to claim 1 for which A is C1-C14 alkyl, C2-C14 alkenyl, C2-C14 alkynyl substituted by an unsubstituted or substituted phenyl and containing no further ring system

-examples 201, 202, 218, 219-234, 239-247, 337-374, 482-491, 514, 516-519

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-4 (all partially); 9-11 (all partially); 24-26 (all partially)

Compounds according to formula I of claim 1 for which X1 is N, X2-X4 are CR'' and A represents (i) or for which X4 is N, X1-X3 are CR'' and A represents (i) as well as their fungicidal use and composition according to claims 24-26.

2. Claims: 1-3 (all partially); 5,6,8 (all partially); 9, 10 (all partially); 12,13, 15 (all partially); 24-26 (all partially)

Compounds according to formula I of claim 1 for which X1 is N, X2-X4 are CR'' and A represents (ii),(iii),(v) or for which X4 is N, X1-X3 are CR'' and A represents (ii),(iii),(v) as well as their fungicidal use and composition according to claims 24-26.

3. Claims: 1-3 (all partially), 7 (partially); 9, 10 (all partially); 14 (partially); 24-26 (all partially)

Compounds according to formula I of claim 1 for which X1 is N, X2-X4 are CR'' and A represents (iv) or for which X4 is N, X1-X3 are CR'' and A represents (iv) as well as their fungicidal use and composition according to claims 24-26.

4. Claims: 1-4 (all partially); 9 (partially); 22 (partially); 24-26 (all partially)

Compounds according to formula I of claim 1 for which X2 is N, X1/X3/X4 are CR'' and A represents (i) or for which X3 is N, X1/X2/X4 are CR'' and A represents (i) as well as their fungicidal use and composition according to claims 24-26.

5. Claims: 1-3 (all partially); 5,6,8, 9 (all partially); 22 (partially); 24-26 (all partially)

Compounds according to formula I of claim 1 for which X2 is N, X1/X3/X4 are CR'' and A represents (ii),(iii),(v) or for which X3 is N, X1/X2/X4 are CR'' and A represents (ii),(iii),(v) as well as their fungicidal use and

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	<p>DATABASE CHEMABS 'Online!' CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US;</p> <p>TANIGUCHI, MAKOTO ET AL: "Preparation of 3-hydroxypicolinic acid amides and 2-hydroxynicotinic acid amides as fungicides" retrieved from STN Database accession no. 131:157713 XP002162519 CAS RN: 1079-41-0; 116044-29-2; 149353-10-6; 237060-12-7; 70277-06-4; 149353-07-1; 149353-11-7; 116044-28-1; 149353-09-3; 237060-10-5 abstract &amp; JP 11 228542 A (MEIJI SEIKA KAISHA, LTD., JAPAN) 24 August 1999 (1999-08-24)</p> <p>-----</p> <p>EP 0 816 331 A (ROHM &amp; HAAS) 7 January 1998 (1998-01-07) example 12 claims 10,11</p> <p>-----</p> <p>EP 0 198 382 A (BAYER AG) 22 October 1986 (1986-10-22) example 2 claim 4</p> <p>-----</p>	1-4, 9-11, 24-26
A		1-4, 9-11, 24
A		1-4, 9-11, 24

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## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
  
3.  Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-4(all in part); 9-11(all in part); 24-26(all in part)

### Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.